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UNITED STATES PATENT AND TRADEMARK OFFICE

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PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKANORI CHIBA, KAZUKO CHIBA, KUMIKO CHIBA,
TAKUYA MATSUMOTO and KEIICHI KITANO

Appeal No. 2004-0793
Application 09/807,322

ON BRIEF

Before PAK, OWENS, and JEFFREY T. SMITH, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from a rejection of claims 5-14, which are all of the claims pending in the application.

THE INVENTION

The appellants claim 1) a process for preparing a rigid polyurethane foam, and 2) an apparatus which is useful for dispersing cyclopentane in an isocyanate-reactive mixture which includes a polyol having poor compatibility with cyclopentane.

Claims 5 and 12 are illustrative.

5. A process for preparing a rigid polyurethane foam comprising reacting

- a) an organic polyisocyanate with
- b) an isocyanate-reactive composition comprising
 - (i) a polyether polyol and/or a polyester polyol having poor compatibility with cyclopentane,
 - (ii) cyclopentane
 - (iii) water,
 - (iv) a surfactant, and
 - (v) a catalyst

in which the cyclopentane is dispersed in the isocyanate-reactive composition.

12. An apparatus useful for dispersing cyclopentane in an isocyanate-reactive mixture which includes a polyol having poor compatibility with cyclopentane comprising a polyol tank, a static mixer and a high pressure circulating line in which the static mixer is in the high pressure circulating line.

THE REFERENCES

Barth et al. (Barth)	4,275,172	Jun. 23, 1981
Rotermund et al. (DE '570) ¹ (German patent disclosure)	DE 197 08 570 A1	Oct. 9, 1998

¹ Citations herein to DE '570 are to the English translation thereof which is of record.

THE REJECTIONS

The claims stand rejected under 35 U.S.C. § 102(b) as follows: claims 5-11 as anticipated by DE '570, and claims 12-14 as anticipated by Barth.

OPINION

We affirm the aforementioned rejections.

The appellants state that the claims stand or fall in two groups: 1) claims 5-11, and 2) claims 12-14 (brief, page 3). We therefore limit our discussion to one claim in each group to which each rejection applies, i.e., claims 5 and 12, which are the sole independent claims in each group. See *In re Ochiai*, 71 F.3d 1565, 1566 n.2, 37 USPQ2d 1127, 1129 n.2 (Fed. Cir. 1995); 37 CFR § 1.192(c)(7) (1997).

Rejection over DE '570

DE '570 discloses, in comparison example 1 (page 14), a process for preparing a rigid polyurethane foam comprising reacting an organic polyisocyanate (component B) with an isocyanate-reactive composition (component A) comprising polyether polyols, cyclopentane, water, a stabilizer,² and a

² It reasonably appears that the DE '570 stabilizer, Goldschmidt B8423, like the appellants' Goldschmidt B8474 (specification, page 7 line 4), is a surfactant as that term is used by the appellants.

catalyst. "Component A was produced by mixing together the named substances into a homogeneous mixture" (page 14).

DE '570 does not state that the cyclopentane is dispersed in component A. However, for the following reasons, it reasonably appears that such a dispersion exists.

First, one polyol is the reaction product of sorbitol and propylene oxide using KOH as catalyst, and the other polyol is the reaction product of toluene diamine, ethylene oxide and propylene oxide using KOH as catalyst. Because these components and catalyst are among those used by the appellants (specification, page 4, lines 11-24), it reasonably appears that, like the appellants' polyol, the DE '570 polyol has poor solubility with cyclopentane.

Second, the appellants define "poor compatibility with cyclopentane" as meaning that "the solubility of cyclopentane in the polyol is 20 g or below, for example 10 g or below, and particularly 5 g or below", where "[t]he term 'solubility' means the number of grams of cyclopentane which are soluble in 100 g of the polyol at 25°C" (specification, page 3, lines 1-4). The amount of cyclopentane in the DE '570 component A is 11.0 parts per 84.4 parts of polyol, i.e., 13.0 parts per 100 parts of

polyol, which is within the appellants' poor solubility concentration range.

Third, the teaching that the substances in component A were mixed into a homogeneous mixture indicates that they were homogenized, which means: "1. To make homogeneous. 2. a. To reduce to particles and disperse throughout a fluid. b. To make uniform in consistency, esp. to render (milk) homogeneous by emulsifying the fat content."³

Because the DE '570 polyol reasonably appears to have poor solubility in cyclopentane, the DE '570 cyclopentane concentration is within the appellants' poor solubility concentration range, and the substances in component A are made homogeneous, i.e., homogenized into particles dispersed throughout a fluid, it reasonably appears that the DE '570 cyclopentane is dispersed in component A. The burden, therefore, has shifted to the appellants to provide evidence to the contrary, see *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657-58 (Fed. Cir. 1990), and the appellants have not carried that burden.

³ Webster's II New Riverside University Dictionary 589 (Riverside 1984). A copy of this definition is provided to the appellants with this decision.

The appellants argue that the DE '570 invention requires C₃-C₄ ring blowing agents (brief, page 4). In comparison example 1, however, the blowing agent is cyclopentane.

The appellants argue that the homogeneous mixture in the DE '570 example 1 is not the same as a dispersion (reply brief, page 2). The appellants, however, provide no evidence in support of that argument. As discussed above, it reasonably appears that the homogeneous mixture in the DE '570 example 1 is a dispersion.

We therefore affirm the rejection of claim 5 and claims 6-11 that stand or fall therewith.

Rejection over Barth

The appellants' claim 12 claims an apparatus comprising 1) a tank and 2) a circulating line which is capable of being operated at high pressure and which has a static mixer therein, wherein the tank is capable of containing a polyol and the apparatus is capable of dispersing cyclopentane in an isocyanate-reactive mixture containing a polyol having poor compatibility with cyclopentane.

Barth discloses an apparatus comprising tanks (29, 30) which contain a polyol (col. 16, lines 35-36) and are pressurized to 60 psi (col. 17, lines 5-12). The discharge from the tanks is mixed with other materials and this mixture passes through a line

containing a static mixer (86) and then may be applied directly to a substrate or may be applied to the substrate with an applicator (87) (col. 17, lines 30-33). There is no dispute as to whether the line containing the static mixer is a "high pressure" line as that term is used by the appellants.

The appellants argue that Barth's static mixer is not in a circulating line because, as stated in the Webster's New Collegiate Dictionary definition of "circulate" appended to the reply brief, a circulating line is one in which the material follows a course that returns to the starting point (reply brief, page 3).

During patent prosecution, claims are to be given their broadest reasonable interpretation consistent with the specification, as the claim language would have been read by one of ordinary skill in the art in view of the specification and prior art. See *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). The appellants' specification merely states that the polyol tank has a static mixer in a high pressure circulating line (page 7, lines 29-30). The specification does not limit the definition of "circulate" to that relied upon by the appellants. Consequently, the circulating line can be one which, according to another of the definitions of "circulate" in

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the dictionary relied upon by the appellants, passes the fluid from "place to place: as **a**: to flow, without obstruction".

Because Barth's mixture flows without obstruction through the static mixer to the substrate, the static mixer is in a circulating line according to the broadest reasonable interpretation of that term consistent with the appellants' specification.

Accordingly, we affirm the rejection of claim 12 and claims 13 and 14 that stand or fall therewith.


DECISION

The rejections under 35 U.S.C. § 102(b) of claims 5-11 over DE '570 and claims 12-14 over Barth are affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED


CHUNG K. PAK

CHUNG K. PAK
Administrative Patent Judge

TERRY J. OWENS
TERRY J. OWENS

Administrative Patent Judge

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JEFFREY T. SMITH
Administrative Patent Judge

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